REMARKS

Claims 1-16, 18 and 20-37 are currently pending in the subject application, and are presently under consideration. Claims 1-9, 11-16, 18, 20-22 and 24-37 are rejected. Claims 10 and 23 have been indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 15 has been amended. Claim 16 has been canceled. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Rejection of Claims 1-2, 5-6, 9, 11, 14, 25-32 and 34-35 under 35 U.S.C. 103(a)

Claims 1-2, 5-6, 9, 11, 14, 25-32 and 34-35 have been rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application No. 2002/0168043 to Sander ("Sander"), in view of U.S. Patent No. 6,269,135 to Sander ("Sander 2"). Applicant's representative traverses this rejection for the following reasons.

Regarding claim 1, Sander taken in view of Sander 2 does not make claim 1 obvious. In rejecting claim 1, the Office Action contends that the "Sum" signal (Sum value 410) disclosed in Sander corresponds to the determined frequency value recited in claim 1. Applicant's representative respectfully disagrees. The detector recited in claim 1 provides a value that represents a determined frequency of an input signal. In contrast, the Sum value 410 disclosed in Sander only provides an indication if the frequency of Fx is greater than or less than the frequency of Fs (See Sander, Para. [0032]). That is, the Sum value 410 is only a comparison of two frequencies, not a value that represents a determined frequency as is being claimed. In fact, the Office Action admits that Sander does not teach or suggest a detector that determines the frequency of an input signal. Accordingly, Sander cannot teach or suggest a detector that provides a value that represents the frequency of an input signal, as recited in claim 1.

Moreover, as stated above, in rejecting claim 1, the Office Action admits that Sander does not teach or suggest a detector that determines the frequency of an input signal, as recited in claim 1. However, the Office Action contends Sander 2 makes up for the deficiencies of Sander. Specifically, the Office Action contends that the filter illustrated in FIG. 8 of Sander 2 corresponds to the detector recited in claim 1 (See Office Action, Page 3). Applicant's representative respectfully disagrees. The detector recited in claim 1 determines the frequency of an input signal and provides a value that represents the determined frequency of the input signal. FIG. 8 of Sander 2 discloses the results of filtering using a

straight-line weighting function (See Sander 2, Col. 5, Lines 1-2). The digital filter disclosed in FIG. 8 of Sander 2 does not determine a frequency of an input signal. Instead, as shown in FIG. 8 of Sander 2, the digital filter only provides a ratio of the frequency between signals Fx and Fs. A ratio is clearly not a value that represents a determined frequency as recited in claim 1. Accordingly, Sander taken in view of Sander 2 does not teach or suggest the detector, as recited in claim 1. Therefore, Sander taken in view Sander 2 does not make claim 1 obvious, and claim 1 is patentable.

Claims 2, 5-6, 9 and 11 depend either directly or indirectly from claim 1, and are not obvious for at least the same reasons as stated above with respect to claim 1, and for the specific elements recited therein. Accordingly, claims 2, 5-6, 9 and 11 are patentable over the cited art.

Regarding claim 25, Sander taken in view of Sander 2 does not make claim 25 obvious. In rejecting claim 25, the Office Action contends that a Sum signal (Sum value 410) disclosed in Sander corresponds to means for providing a corresponding frequency value, as recited in claim 25 (See Office Action, Page 6). Applicant's representative respectfully disagrees. As stated above with respect to claim 1, the Sum value 401 disclosed in Sander does not correspond to a frequency value. Furthermore, as admitted in the Office Action, Sander fails to teach or suggest means for determining a frequency for an input signal, as recited in claim 25. Therefore, since Sander fails to teach or suggest means for determining a frequency, Sander cannot teach or suggest means for providing a corresponding frequency value for the determined frequency, as recited in claim 25.

As stated above, in rejecting claim 25, the Office Action admits that Sander does not teach or suggest a detector that determines the frequency of an input signal. However, the Office Action contends that Sander 2 makes up for the deficiencies of Sander. Specifically, the Office Action contends that the filter illustrated in FIG. 8 of Sander 2 corresponds to the means for determining a frequency, as recited in claim 25 (See Office Action, Page 6). Applicant's representative respectfully disagrees. As stated above with respect to claim 1, the digital filter disclosed in Sander 2 provides only a ratio of the frequency between signals Fx and Fs, and a ratio is clearly not a value that represents a frequency determined according to claim 1. Accordingly, Sander taken in view of Sander 2 does not teach or suggest the means for determining a frequency, as recited in claim 25. Therefore, Sander taken in view Sander 2 does not make claim 25 obvious, and claim 25 is patentable over the cited art.

Claims 26-29 depend from claim 25 and are not obvious for at least the same reasons as claim 25 and for the specific elements recited therein. Accordingly, claims 26-29 are patentable over the cited art.

Additionally, regarding claim 29, the Office Action contends that in Sander, a controller must be present to implement an adjustment of an input clock signal based on a comparison of an alias value with a sum value (See Office Action, Page 7), and therefore, Sander teaches means for controlling a frequency, as recited in claim 29. Applicant's representative respectfully disagrees. Claim 29 recites means for controlling the frequency of an input signal based on a comparison of a frequency of an input signal and a desired frequency. Claim 29 also recites that the comparison is performed by means for comparing the frequency value relative to a desired frequency value. Again, Applicant reiterates that neither Sander nor Sander 2 discloses comparing the determined frequency value and to a desired frequency values (in fact both Sander references fails to suggest comparing any frequency values) as recited in claim 29. Sander teaches a digital circuit that provides a number stream for frequency and/or phase comparison of digital or digitized signals (See Sander, Abstract). Nothing in Sander teaches or suggests that the frequency of either of the digital signals (Fx and Fs) is adjusted based on the number stream. Therefore, Sander taken in view of Sander 2 does not make claim 29 obvious.

Regarding claim 30, Sander taken in view of Sander 2 does not make claim 30 obvious. Sander taken in view of Sander 2 does not teach or suggest determining a frequency value for a signal based on output samples that correspond to times instances of a signal residing within a single period of the signal, as recited in claim 30. For the reasons stated above with respect to claims 1 and 25, neither Sander nor Sander 2 teaches or suggests determining a frequency value for a signal. Accordingly, Sander taken in view of Sander 2 does not make claim 30 obvious, and claim 30 is patentable over the cited art.

Claims 31-32 and 34-35 depend either directly or indirectly from claim 30 and are not obvious for at least the same reasons as claim 30 and for the specific elements recited therein. Accordingly, claim 31-32 and 34-35 are patentable over the cited art.

For the reasons stated above, claims 1-2, 5-6, 9, 11, 14, 25-32 and 34-35 are patentable over the cited art. Accordingly, withdrawal of this rejection is respectfully requested.

II. Rejection of Claims 3-4, 7-8, 12, 15-16, 18, 20-22, 24 and 33 under 35 U.S.C. 103(a)

Claims 3-4, 7-8, 12, 15-16, 18, 20-22, 24 and 33 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sander, in view of Sander 2 and in further in view of US Patent No. 6,326,826 to Lee, et al. ("Lee"). Applicant's representative traverses this rejection for the following reasons.

Claims 3-4, 7-8 and 12 depend either directly or indirectly from claim 1. The further addition of Lee does not make up for the aforementioned deficiencies of Sander and Sander 2 with respect to claim 1, from which claims 3-4, 7-8 and 12 depend.

Additionally, regarding claim 12, Sander taken in view of Sander 2 and in further view of Lee does not teach or suggest claim 12. In the rejection of claim 12, the Office Action contends that the number stream provided by Sander corresponds to the comparator signal recited in claim 12 (See Office Action, Page 9). Applicant's representative respectfully disagrees. In claim 12, a comparator provides the comparator signal based on a comparison of a value of a frequency for an input signal and a value of a desired frequency. Sander discloses that decision logic block 411 receives an alias value and a Sum value 410 and provides either a logic 1 or logic 0 (the number stream) (See Sander, Para. [0027]). Sander also discloses that the alias value is an indication of an expected frequency range of an unknown signal (See Sander, Para. [0034]). An expected frequency range is clearly not a value of a desired frequency. Therefore, the decision logic block 411 taught in Sander does not correspond to the comparator recited in claim 12.

Moreover, Applicant's representative respectfully submits that there is no motivation to combine and modify the teachings of Sander, Sander 2 and Lee to read on claim 12, as suggested by the Office Action. The United States Court of Appeals for the Federal Circuit ("Federal Circuit") has held that obviousness cannot be established by combining teachings of multiple references to produce the claimed invention, absent some teaching or suggestion supporting the combination. *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1574, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). In Lee, the output of frequency detection logic 12 drives charge pump 14 (See Lee, FIG. 1). Additionally, Lee discloses that detection logic 12 receives an input reference clock (REF_CK) and seven-phase clock (CK[1:7]). In contrast, the decision logic 411 taught in Sander receives the Sum value 410 and the alias value. Sander does not teach or suggest that decision logic 411 receives a clock signal. Accordingly, nothing in Sander or Lee teaches or suggests that decision logic 411 of Sander

could be used in place of the frequency detection logic 12 of Lee. Furthermore, it is respectfully submitted that one skill in the art would not open the closed delay-locked loop (DLL) system disclosed in Lee, which appears would be necessary if decision logic 411 of Sander were to replace frequency detection logic 12 of Lee. Therefore, it is respectfully submitted that in rejecting claim 12, the Office Action is impermissibly using claim 12 and/or the present application to provide the motivation to combine and modify the teachings of Sander, Sander 2 and Lee to read on claim 12.

Moreover, Applicant's representative respectfully submits, that in rejecting claim 12, the Office Action has not stated with any specificity as to how the teachings of Sander, Sander 2 and Lee could be combined to create the system of claim 12. Instead, the Office Action broadly states that that one skilled in the art would me motivated to use the DLL of Lee with the combination system of Sander and Sander 2 (See Office Action Page 10). The DLL disclosed in Lee has only one input signal (REF_CK). Therefore, Applicant's representative assumes that the Office Action is suggesting that that Sander, Sander 2 and Lee could be combined such that the output of decision logic 411 ("Out") disclosed in Sander could be employed to drive the DLL disclosed in Lee (See Office Action, Pages 9-10). Applicant's representative respectfully disagrees.

The Federal Circuit has held that references teach away from their combination if the references taken in combination would produce a seemingly inoperable device. *McGinley v. Franklin Sports Inc.*, 262 F.3d 1339, 1354 60 U.S.P.Q.2D 1001, 1010 (Fed. Cir. 2001). The Out signal taught in Sander could not be used to drive (e.g., via the REF_CK signal) the DLL illustrated in FIG. 1 of Lee. The Out signal disclosed in Sander is a digital signal (e.g., a logic 1 or logic 0), and nothing in Sander teaches or suggests that the Out signal has a frequency. In sharp contrast, the REF_CK signal disclosed Lee is an analog clock signal with a specific frequency (See Lee, FIG. 3). If the Out signal with no frequency of Sander were employed as the REF_CK signal of Lee, the DLL disclosed in Lee would not be able to adjust the frequency of the multiphase clock CK[1:7], as the timing of CK[1:7] is dependent on the frequency of REF_CK, and REF_CK would have no such frequency (See, for example, FIG. 3 of Lee). Accordingly, Sander, Sander 2 and Lee teach away from their combination in the manner suggested by the Office Action in the rejection of claim 12. Therefore, Sander, Sander 2 and Lee do not make claim 12 obvious.

Claim 15 has been amended to substantially incorporate the subject matter recited in claim 16, while claim 16 has been canceled. Accordingly, Applicant's representative has

considered the rejection of claim 16 in the response to the rejection of amended claim 15. Since claim 15 now recites what was previously presented in dependent claim 16, Applicant respectfully requests that no new matter has been such that the claim is proper at this stage of prosecution, at least for purposes of appeal.

Sander taken in view of Sander 2 and in further view of Lee does not make amended claim 15 obvious. In rejecting claim 16, which claim 15 has been amended to substantially incorporate, the Office Action contends that the decision block illustrated in FIG. 5 of Sander corresponds to the detector recited in claim 16 (See Office Action, Page 12). Applicant's representative respectfully disagrees. The detector recited in amended claim 15 provides a frequency value of an input signal. In contrast, the decision logic disclosed in Sander provides an output that only represents a comparison of the frequency signals Fs and Fx (See Sander, Para. [0030]). A comparison of frequency of two signals does not correspond to the frequency value recited in amended claim 15. Therefore, Sander, Sander 2 and Lee taken individually or in combination do not teach or suggest the detector recited in amended claim 15. Accordingly, Sander, Sander 2 and Lee do not make amended claim 15 obvious, and amended claim 15 is patentable.

Claims 18, 20-22 and 24 depend from amended claim 15 and are not obvious for at least the same reasons as stated above with respect to amended claim 15, and for the specific elements recited therein. Accordingly, claims 18, 20-22 and 24 are patentable.

Claim 33 depends from claim 30. The further addition of Lee does not make up for the aforementioned deficiencies of Sander and Sander 2, with respect to claim 30, from which claim 33 depends. Accordingly, claim 30 is patentable over the cited art.

For the reasons stated above, claims 3-4, 7-8, 12, 15, 18, 20-22, 24 and 33 are patentable over the cited art. Accordingly, withdrawal of this rejection is respectfully requested.

III. Allowable Subject Matter

Applicant appreciates the indication that claims 10 and 23 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

IV. CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Should the Examiner have any questions concerning this paper, the Examiner is invited and encouraged to contact Applicant's undersigned attorney at (216) 621-2234, Ext. 106.

No additional fees should be due for this response. In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to Deposit Account No. 08-2025.

Respectfully submitted,

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